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# **INTRODUCTION**

In accordance with City Council Referral 12-7-93-7d(6), we have reviewed the San Jose Fire Department's current emergency medical service (EMS) response times in San Jose. This is an informational report only and does not make any recommendations. Our review of EMS responses covers the period of July 1, 1993, through September 30, 1993, and makes comparisons to results from two previous reviews conducted by the City Auditor.<sup>1</sup> The Scope and Methodology section of this report describes the limitations of our work. We conducted our review in accordance with generally accepted government auditing standards.

The City Auditor's Office thanks the Police and Fire Department communications staff members who provided the computer reports and other data which made our timely review possible.

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<sup>1</sup> See City Auditor Report #91-04, *A Review Of San Jose Fire Department And Santa Clara County Paramedic Response To Calls For Emergency Medical Service*, issued March 1991, and Report #93-02, *A Review Of The 1992 Emergency Medical Services Dispatch Process And Response Times In San Jose With Comparison To 1990 Performance*, issued March 1993.

## **SCOPE AND METHODOLOGY**

Our review of current San Jose Fire Department (SJFD) emergency medical service (EMS) response performance covered the period of July 1, 1993, through September 30, 1993. We also made comparisons to response performance for the same period in 1990 and 1992.<sup>2</sup> Fire and Police Department communications staff provided the data for 1993 in both computer disk and hard copy formats. This data, extracted from the City's computer-aided dispatch (CAD) system, includes all 9,147 SJFD responses to emergency medical events dispatched during the given time period.<sup>3</sup> Therefore, the results in this report are for 100 percent of the EMS activity for the first quarter of 1993-94. Our data for 1990 and 1992 came from the City Auditor's two earlier reports on EMS response performance. Because we used statistical sampling in these two reviews, the results have some margin for error. Specifically, we sampled 538 responses in 1990 and 297 responses in 1992. We were 95 percent confident that the results of our samples were representative of the time periods studied, plus or minus 2.5 percent.

The 1993 data we obtained was limited to the EMS event number, its location by zone building block, fire station response area, City Council district, and responding unit (engine or truck) number. Response times in minutes were

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<sup>2</sup> For 1990 EMS response performance see City Auditor Report #91-04, *A Review Of San Jose Fire Department And Santa Clara County Paramedic Response To Calls For Emergency Medical Service*, issued March 1991; and for 1992 performance see Report #93-02, *A Review Of The 1992 Emergency Medical Services Dispatch Process And Response Times In San Jose With Comparison To 1990 Performance*, issued March 1993.

<sup>3</sup> The EMS events in our 1993 review include all SJFD responses to Priority 1 and Priority 2 EMS and Rescue type events as coded by dispatchers in the City Communications Center. Responses to Rescue events were also subject to sampling selection in our 1990 and 1992 studies.

given for turnout time, travel time, and turnout plus travel combined time for the first responding unit.

We did only limited testing to determine the accuracy of information in the various computer reports used. Such testing included reviewing the parameters of the program used to extract the data from the CAD system and determining that some programmed item counts and average response times calculated for the fire station response areas and City Council districts were accurate. However, we did not review the general systems controls or the specific application controls for the computer systems used to produce any of the reports or data we used.<sup>4</sup>

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<sup>4</sup> See the Scope and Methodology section of City Auditor Report #91-04 and Report #93-02 respectively for the limitations of our 1990 and 1992 studies of EMS response performance.

# **BACKGROUND**

Our review provides detailed information to the San Jose City Council and the City Administration regarding the San Jose Fire Department's (SJFD) current emergency medical service (EMS) response time performance. Specifically, our review covers two segments of the SJFD's total EMS response time: turnout time and travel time. See Diagram 1 on page 6 which shows all time elements of a typical EMS response as described in our previous report.<sup>5</sup>

During our review of 1992 EMS response times, we found that the SJFD had the overall slowest response time performance in City Council District 4 compared to other districts in San Jose. The SJFD did not meet either of its emergency response performance objectives in City Council District 4. These performance objectives were:

- Turnout time (from time of dispatch to time en route) will not exceed 2 minutes for 90 percent of emergency responses.
- Travel time (from time en route to time of arrival for the first arriving unit) will not exceed 4 minutes for 80 percent of emergency responses.

In 1992, City Council District 4 was the only City Council district for which the SJFD did not meet its turnout time performance objective. In addition, City Council District 4 was one of seven City Council districts (Districts 1, 2, 4, 6, 7, 8, and 10) where the SJFD did not meet its travel time performance objective.

Following the May 26, 1993, presentation of our report on 1992 EMS response times, the City Council has twice referred requests to the Administration

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<sup>5</sup> See City Auditor Report #93-02.

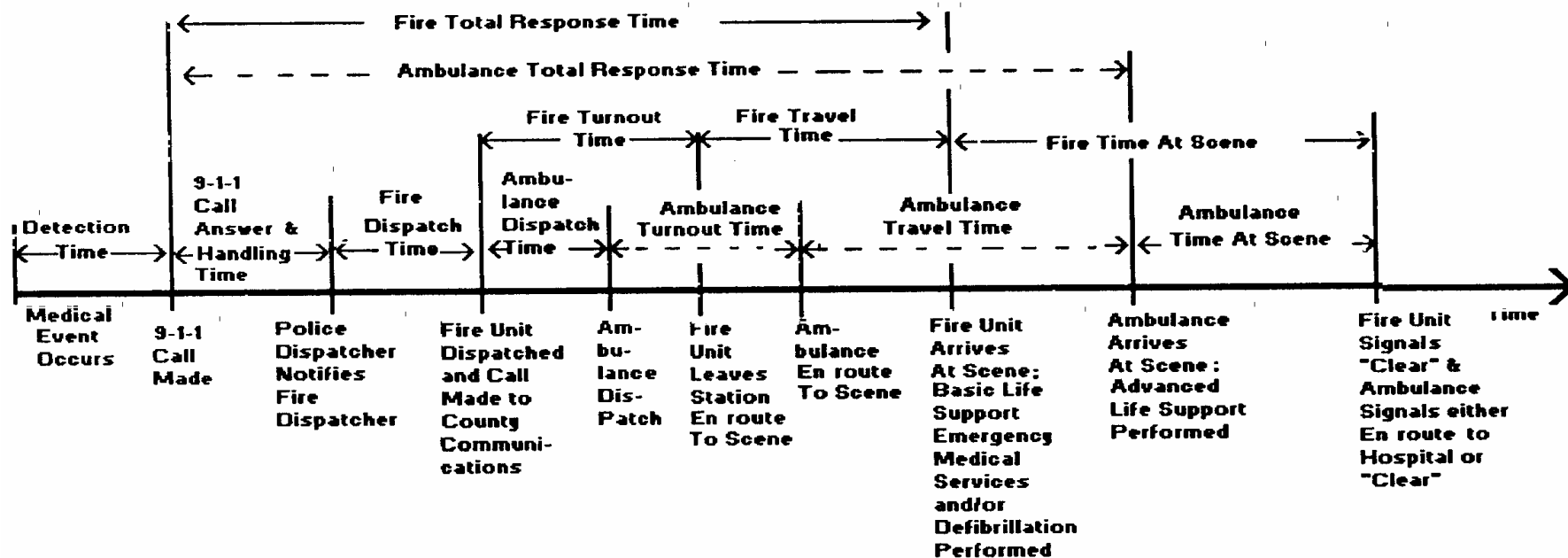
for additional information on EMS response times, particularly those within City Council District 4.<sup>6</sup> While the SJFD has responded to these referrals, it has not provided reasons why its response times in City Council District 4 remained relatively slow despite the opening in July 1992 of Fire Station 29 in that district. In a November 1993 memorandum to the Finance Committee, the SJFD indicated that with Fire Station 29 in place its travel time and overall response time in City Council District 4 should be faster. The SJFD did not provide any statistical data to support its faster response time assumption. At its November 24, 1993, meeting, the Finance Committee requested the City Auditor to study updated information about the SJFD's EMS response times, particularly in the Fire Station 29 and City Council District 4 areas. This report is in response to the Finance Committee's request.

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<sup>6</sup> Finance Committee Referral 5-26-93, and City Council Referral 8-3-93-7d(2).

# DIAGRAM 1

## TIME ELEMENTS OF A TYPICAL 1992 EMS RESPONSE WHEN 9-1-1 CALL IS ANSWERED BY SAN JOSE COMMUNICATIONS CENTER



Note: The relative lengths of the time segments are not drawn to scale to allow space for descriptions.



**A REVIEW OF SAN JOSE FIRE DEPARTMENT  
EMERGENCY MEDICAL SERVICE RESPONSE TIMES  
FROM JULY 1, 1993, THROUGH SEPTEMBER 30, 1993**

In accordance with City Council Referral 12-7-93-7d(6), we have reviewed the San Jose Fire Department's (SJFD) current emergency medical service (EMS) response times. Our review provides detailed information to the San Jose City Council and the City Administration regarding SJFD's turnout and travel times in response to EMS events.

Our review of SJFD responses to EMS events from July 1, 1993, through September 30, 1993 revealed the following:

- The SJFD responded to 9,147 EMS events during this period;
- City Council District 3 had the highest volume of EMS events while City Council District 10 had the lowest volume of EMS events;
- When compared to 1990 and 1992, the SJFD's responses to EMS events during July 1, 1993, through September 30, 1993, were slower Citywide and were also generally slower in each City Council district;
- In only one City Council district (District 1) did the SJFD meet its turnout time objective of 2 minutes or less for 90 percent of responses;
- In only three City Council districts (Districts 3, 5, and 6) did the SJFD meet its travel time objective of 4 minutes or less for 80 percent of responses;
- City Council District 4 had the lowest percentage of responses that were 2 minutes or less for turnout time (82 percent) and 4 minutes or less for travel time (56 percent); and
- When compared to our 1992 study results, neither the SJFD's 1993 travel time nor combined turnout time plus travel time performance in City Council District 4 improved.

**The SJFD Responded To 9,147 EMS Events  
From July 1, 1993, Through September 30, 1993**

Of the total 11,954 emergency incidents to which SJFD vehicles were dispatched from July 1, 1993, through September 30, 1993, 77 percent were EMS type events. Of these 9,147 EMS events, 9,102 were in the city of San Jose (City) and 45 were outside the City limits. Responses outside of the City may be to auto-aid areas for the Central Fire District, California Division of Forestry, South County Fire District, and the cities of Milpitas, Morgan Hill, Santa Clara, or Saratoga.

**City Council District 3 Had The Highest Volume Of EMS Events  
While City Council District 10 Had The Lowest Volume Of EMS Events**

Table I categorizes the 9,102 EMS events dispatched in the City from July 1, 1993, through September 30, 1993, by City Council district.<sup>7</sup> As Table I shows, City Council District 3 had the highest volume of EMS events to which the SJFD dispatched vehicles from various fire stations serving the district, while City Council District 10 had the least number of EMS events during the period.

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<sup>7</sup> The number of arrivals at the scene for each City Council district is less than the number of dispatches from fire stations because a number of EMS dispatches are always canceled before the first dispatched SJFD unit arrives at the scene. For example, the ambulance may have arrived first and requested that the SJFD unit be canceled, or the SJFD may have been notified that the call was a false alarm.

**TABLE I****VOLUME OF EMS EVENTS BY CITY COUNCIL DISTRICT  
FROM JULY 1, 1993, THROUGH SEPTEMBER 30, 1993**

| <b>City<br/>Council<br/>District</b> | <b>Number of<br/>Dispatches<br/>From Fire<br/>Stations</b> | <b>Number of<br/>Arrivals At<br/>Scene</b> |
|--------------------------------------|--|--|
| 3                                    | 1,989  | 1,904                                      |
| 6                                    | 1,139  | 1,097                                      |
| 5                                    | 1,125  | 1,073                                      |
| 7                                    | 1,070  | 1,034                                      |
| 4                                    | 757  | 729  |
| 9                                    | 690  | 663  |
| 1                                    | 649  | 626  |
| 8                                    | 639  | 615  |
| 2                                    | 557  | 541  |
| 10                                   | 487  | 470  |
| Citywide                             | 9,102  | 8,752                                      |

Each City Council district has a number of fire stations serving it. Although a fire station may be physically located in a particular district, its response area may cover part of another district as well. For example, City Council District 4 is served by Fire Stations 2, 5, 19, 23, 25, and 29. Stations 23, 25, and 29 are both located in and serve as first due responders for City Council District 4. Stations 5 and 19 are physically located in City Council District 4, but also serve City Council Districts 3 and 5, respectively, as first due responders. Station 2, located in City Council District 5, also covers part of City Council District 4 as the first due station. Table II lists the street address and City Council district number for each of the City's 29 fire stations.

**TABLE II****LOCATION OF SJFD FIRE STATIONS**

| <b>Fire<br/>Station #</b> | <b>Street Address</b>     | <b>City<br/>Council<br/>District</b> |
|---------------------------|---------------------------|--------------------------------------|
| 1                         | 201 N. Market Street      | 3                                    |
| 2                         | 2933 Alum Rock Avenue     | 5                                    |
| 3                         | 98 Martha Street          | 3                                    |
| 4                         | 710 Leigh Avenue          | 6                                    |
| 5                         | 1380 N. Tenth Street      | 4                                    |
| 6                         | 1386 Cherry Avenue        | 6                                    |
| 7                         | 800 Emory Street          | 6                                    |
| 8                         | 802 E. Santa Clara Street | 3                                    |
| 9                         | 3410 Ross Avenue          | 9                                    |
| 10                        | 511 S. Monroe Street      | 6                                    |
| 11                        | 2840 The Villages Parkway | 8                                    |
| 12                        | 502 Calero Avenue         | 2                                    |
| 13                        | 4380 Pearl Avenue         | 10                                   |
| 14                        | 1201 San Tomas Aquino     | 1                                    |
| 15                        | 1248 Blaney Avenue        | 1                                    |
| 16                        | 2001 S. King Road         | 7                                    |
| 17                        | 1494 Ridgewood Drive      | 9                                    |
| 18                        | 4430 S. Monterey Road     | 2                                    |
| 19                        | 1025 Piedmont Road        | 4                                    |
| 20                        | 1433 Airport Boulevard    | 3                                    |
| 21                        | 1749 Mt. Pleasant Road    | 8                                    |
| 22                        | 6461 Bose Lane            | 10                                   |
| 23                        | 1771 Via Cinco de Mayo    | 4                                    |
| 24                        | 2525 Aborn Road           | 8                                    |
| 25                        | 4758 Gold Street          | 4                                    |
| 26                        | 528 Tully Road            | 7                                    |
| 27                        | 239 Bernal Road           | 2                                    |
| 28                        | 20399 Almaden Road        | 10                                   |
| 29                        | 199 Caviglia Drive        | 4                                    |

Table III categorizes July 1, 1993, through September 30, 1993, EMS events by fire station response area. As Table III shows, Fire Station 8 had the highest EMS event volume, while Fire Station 25 had the least activity.<sup>8</sup>

**TABLE III**  
**VOLUME OF EMS EVENTS BY FIRE STATION RESPONSE AREA**  
**FROM JULY 1, 1993, THROUGH SEPTEMBER 30, 1993**

| <b><u>Fire Station<br/>Response Area</u></b> | <b><u>Number Of Dispatches<br/>From Fire Stations</u></b> | <b><u>Number Of<br/>Arrivals At Scene</u></b> |
|--|---|---|
| 8  | 756   | 722   |
| 1  | 685   | 661   |
| 2  | 678   | 643   |
| 3  | 598   | 575   |
| 16   | 580   | 552   |
| 18   | 491   | 472   |
| 26   | 487   | 473   |
| 14   | 467   | 448   |
| 4  | 446   | 428   |
| 9  | 379   | 360   |
| 13   | 338   | 327   |
| 5  | 310   | 296   |
| 12   | 308   | 303   |
| 6  | 294   | 285   |
| 24   | 294   | 281   |
| 10   | 260   | 254   |
| 23   | 239   | 231   |
| 17   | 224   | 220   |
| 19   | 208   | 201   |
| 21   | 203   | 196   |
| 7  | 183   | 174   |
| 27   | 139   | 134   |
| 29   | 134   | 130   |
| 22   | 108   | 102   |
| 15   | 93  | 93  |
| 11   | 77  | 75  |
| 20   | 57  | 57  |
| 28   | 39  | 37  |
| 25   | 35  | 33  |
| Citywide                                     | <u>9,110</u>  | <u>8,763</u>                                  |

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<sup>8</sup> It should be noted that the total number of EMS events dispatched shown on Table III (9,110) is higher than the total on Table I (9,102) because there were 8 events in the first due response area for some fire stations that are actually outside the City limits and therefore are not geographically within a City Council district. Similar to Table I, the number of arrivals at the scene in Table III (8,763) is less than the number of dispatches from fire stations (9,110) because of cancellations while en route.

**When Compared To 1990 And 1992, The SJFD's Responses  
To EMS Events During July 1, 1993, Through September 30, 1993,  
Were Slower Citywide And Generally Slower In Each City Council District**

Table IV summarizes the 1990 to 1993 SJFD EMS performance by City Council district for turnout time, travel time, and combined turnout and travel time. Overall, there was a slight decline of 1 percent in the Citywide performance for turnout and travel time combined from 1990 to 1993. Between 1990 and 1992 the percentage of responses with combined turnout and travel time of 6 minutes or less improved 2 percent and then fell by 3 percent from 1992 to 1993. Table V on page 14 categorizes the same 1990 to 1993 EMS performance data by fire station response area.

**Only One City Council District (District 1)  
Met The SJFD's Turnout Time Objective  
Of 2 Minutes Or Less For 90 Percent Of Responses**

In 1992, the SJFD met its turnout time objective of 2 minutes or less for 90 percent of responses in all but one City Council district (District 4). However, for 1993 as shown in Table IV, only City Council District 1 met the turnout time performance objective. The SJFD achieved 92 percent of its turnout responses in City Council District 1 within 2 minutes. Except for City Council District 4, all districts show a decline in turnout time performance since 1992.

TABLE IV

1990 TO 1993  
SUMMARY OF TURNOUT AND TRAVEL TIME PERFORMANCE  
BY CITY COUNCIL DISTRICT

|  |   |   |   |
|--|---|---|---|
| S&D RESPONSE<br>PERFORMANCE<br>OBJECTIVE | TURNOUT TIME:<br>80% NOT TO EXCEED<br>2 MINUTES | TRAVEL TIME :<br>80% NOT TO EXCEED<br>4 MINUTES | TURNOUT +<br>TRAVEL COMBINED:<br>NO OBJECTIVE |
|--|---|---|---|

## ----- TURNOUT TIME PERFORMANCE -----

|                       | 1990                      | 1992                      | 1993                      |                                       |
|-----------------------|---------------------------|---------------------------|---------------------------|---------------------------------------|
| CITY COUNCIL DISTRICT | RESPONSE WITHIN 2 MINUTES | RESPONSE WITHIN 2 MINUTES | RESPONSE WITHIN 2 MINUTES | 1993 TO 1992 IMPROVEMENT OR (DECLINE) |
| 1                     | 94%                       | 94%                       | 92%                       | (2%)                                  |
| 2                     | 71%                       | 91%                       | 87%                       | (4%)                                  |
| 3                     | 95%                       | 81%                       | 89%                       | (2%)                                  |
| 4                     | 82%                       | 73%                       | 82%                       | 9%                                    |
| 5                     | 90%                       | 88%                       | 87%                       | (1%)                                  |
| 6                     | 89%                       | 91%                       | 88%                       | (3%)                                  |
| 7                     | 86%                       | 90%                       | 85%                       | (7%)                                  |
| 8                     | 86%                       | 90%                       | 87%                       | (3%)                                  |
| 9                     | 89%                       | 95%                       | 83%                       | (12%)                                 |
| 10                    | 73%                       | 92%                       | 84%                       | (8%)                                  |
| CITYWIDE              | 88%                       | 92%                       | 87%                       | (5%)                                  |

## ----- TRAVEL TIME PERFORMANCE

|                       | 1990                      | 1992                      | 1993                      |                                       |
|-----------------------|---------------------------|---------------------------|---------------------------|---------------------------------------|
| CITY COUNCIL DISTRICT | RESPONSE WITHIN 4 MINUTES | RESPONSE WITHIN 4 MINUTES | RESPONSE WITHIN 4 MINUTES | 1993 TO 1992 IMPROVEMENT OR (DECLINE) |
| 1                     | 70%                       | 71%                       | 75%                       | 4%                                    |
| 2                     | 77%                       | 84%                       | 57%                       | (7%)                                  |
| 3                     | 84%                       | 94%                       | 90%                       | (4%)                                  |
| 4                     | 61%                       | 73%                       | 56%                       | (17%)                                 |
| 5                     | 84%                       | 90%                       | 81%                       | (8%)                                  |
| 6                     | 87%                       | 67%                       | 81%                       | 14%                                   |
| 7                     | 87%                       | 65%                       | 68%                       | 2%                                    |
| 8                     | 86%                       | 78%                       | 68%                       | (8%)                                  |
| 9                     | 82%                       | 90%                       | 78%                       | (2%)                                  |
| 10                    | 80%                       | 62%                       | 68%                       | 6%                                    |
| CITYWIDE              | 78%                       | 78%                       | 76%                       | (3%)                                  |

## TURNOUT + TRAVEL TIME PERFORMANCE

|                       | 1990                      | 1992                      | 1993                      |                                       |
|-----------------------|---------------------------|---------------------------|---------------------------|---------------------------------------|
| CITY COUNCIL DISTRICT | RESPONSE WITHIN 6 MINUTES | RESPONSE WITHIN 6 MINUTES | RESPONSE WITHIN 6 MINUTES | 1993 TO 1992 IMPROVEMENT OR (DECLINE) |
| 1                     | 81%                       | 93%                       | 89%                       | (7%)                                  |
| 2                     | 80%                       | 73%                       | 68%                       | (5%)                                  |
| 3                     | 88%                       | 95%                       | 93%                       | (2%)                                  |
| 4                     | 81%                       | 68%                       | 65%                       | (3%)                                  |
| 5                     | 93%                       | 95%                       | 87%                       | (8%)                                  |
| 6                     | 88%                       | 77%                       | 88%                       | 11%                                   |
| 7                     | 78%                       | 83%                       | 82%                       | (1%)                                  |
| 8                     | 75%                       | 88%                       | 79%                       | (9%)                                  |
| 9                     | 94%                       | 81%                       | 85%                       | 4%                                    |
| 10                    | 80%                       | 77%                       | 78%                       | 1%                                    |
| CITYWIDE              | 84%                       | 86%                       | 83%                       | (3%)                                  |

# TABLE V

## 1990 TO 1993 SUMMARY OF TURNOUT AND TRAVEL TIME PERFORMANCE BY FIRE STATION RESPONSE AREA

SJFD RESPONSE  
PERFORMANCE  
OBJECTIVES

TURNOUT TIME:  
90% NOT TO EXCEED  
2 MINUTES

TRAVEL TIME :  
80% NOT TO EXCEED  
4 MINUTES

TURNOUT +  
TRAVEL COMBINED:  
NO OBJECTIVE

### ----- TURNOUT TIME PERFORMANCE -----

### ----- TRAVEL TIME PERFORMANCE -----

### TURNOUT + TRAVEL TIME PERFORMANCE

| FIRE<br>STATION<br>AREA | 1990<br>RESPONSE<br>WITHIN<br>2 MINUTES | 1992<br>RESPONSE<br>WITHIN<br>2 MINUTES | 1993<br>RESPONSE<br>WITHIN<br>2 MINUTES | 1992 TO 1993<br>IMPROVEMENT<br>OR (DECLINE) |
|-------------------------|---|---|---|---|
| 1                       | 93%                                     | 92%                                     | 88%                                     | (4%)  |
| 2                       | 87%                                     | 100%                                    | 87%                                     | (13%)                                       |
| 3                       | 94%                                     | 100%                                    | 86%                                     | (14%)                                       |
| 4                       | 96%                                     | 93%                                     | 91%                                     | (2%)  |
| 5                       | 93%                                     | 82%                                     | 81%                                     | (11%)                                       |
| 6                       | 88%                                     | 71%                                     | 89%                                     | 18%   |
| 7                       | 78%                                     | 80%                                     | 86%                                     | 6%  |
| 8                       | 100%                                    | 100%                                    | 94%                                     | (6%)  |
| 9                       | 88%                                     | 93%                                     | 80%                                     | (13%)                                       |
| 10                      | 77%                                     | 100%                                    | 88%                                     | (12%)                                       |
| 11                      | 75%                                     | 100%                                    | 78%                                     | (22%)                                       |
| 12                      | 74%                                     | 100%                                    | 82%                                     | (18%)                                       |
| 13                      | 67%                                     | 100%                                    | 85%                                     | (15%)                                       |
| 14                      | 93%                                     | 93%                                     | 90%                                     | (3%)  |
| 15                      | 100%                                    | 100%                                    | 87%                                     | (3%)  |
| 16                      | 96%                                     | 95%                                     | 86%                                     | (9%)  |
| 17                      | 86%                                     | 86%                                     | 86%                                     | 0%  |
| 18                      | 88%                                     | 94%                                     | 90%                                     | (4%)  |
| 19                      | 93%                                     | 67%                                     | 87%                                     | 30%   |
| 20                      | 100%                                    | 50%                                     | 91%                                     | 41%   |
| 21                      | 77%                                     | 100%                                    | 86%                                     | (14%)                                       |
| 22                      | 79%                                     | 100%                                    | 87%                                     | (13%)                                       |
| 23                      | 85%                                     | 50%                                     | 77%                                     | 27%   |
| 24                      | 91%                                     | 85%                                     | 90%                                     | 5%  |
| 25                      | 40%                                     | 0%                                      | 77%                                     | 77%   |
| 26                      | 93%                                     | 100%                                    | 90%                                     | (10%)                                       |
| 27                      | 67%                                     | 75%                                     | 81%                                     | 16%   |
| 28                      | 0%                                      | 100%                                    | 67%                                     | (33%)                                       |
| 29                      | N/A                                     | 100%                                    | 75%                                     | (25%)                                       |
| CITYWIDE                | 88%                                     | 92%                                     | 87%                                     | (5%)  |

| 1990<br>RESPONSE<br>WITHIN<br>4 MINUTES | 1992<br>RESPONSE<br>WITHIN<br>4 MINUTES | 1993<br>RESPONSE<br>WITHIN<br>4 MINUTES | 1992 TO 1993<br>IMPROVEMENT<br>OR (DECLINE) |
|---|---|---|---|
| 92%                                     | 96%                                     | 95%                                     | (1%)  |
| 85%                                     | 83%                                     | 83%                                     | 0%  |
| 86%                                     | 92%                                     | 85%                                     | (7%)  |
| 92%                                     | 62%                                     | 88%                                     | 26%   |
| 73%                                     | 100%                                    | 68%                                     | (34%)                                       |
| 81%                                     | 83%                                     | 73%                                     | (10%)                                       |
| 78%                                     | 100%                                    | 82%                                     | (18%)                                       |
| 87%                                     | 89%                                     | 82%                                     | (7%)  |
| 81%                                     | 71%                                     | 74%                                     | 3%  |
| 83%                                     | 57%                                     | 76%                                     | 19%   |
| 75%                                     | 100%                                    | 73%                                     | (27%)                                       |
| 76%                                     | 75%                                     | 66%                                     | (9%)  |
| 57%                                     | 78%                                     | 72%                                     | (6%)  |
| 69%                                     | 62%                                     | 80%                                     | 18%   |
| 75%                                     | 100%                                    | 78%                                     | (24%)                                       |
| 82%                                     | 81%                                     | 84%                                     | 3%  |
| 86%                                     | 100%                                    | 83%                                     | (17%)                                       |
| 60%                                     | 50%                                     | 68%                                     | 18%   |
| 64%                                     | 83%                                     | 72%                                     | (11%)                                       |
| 50%                                     | 50%                                     | 88%                                     | 38%   |
| 77%                                     | 100%                                    | 65%                                     | (35%)                                       |
| 79%                                     | 75%                                     | 64%                                     | (11%)                                       |
| 81%                                     | 67%                                     | 50%                                     | (17%)                                       |
| 64%                                     | 69%                                     | 62%                                     | (7%)  |
| 50%                                     | 0%                                      | 82%                                     | 82%   |
| 50%                                     | 68%                                     | 64%                                     | (4%)  |
| 78%                                     | 50%                                     | 40%                                     | (10%)                                       |
| 100%                                    | 33%                                     | 35%                                     | 2%  |
| N/A                                     | 0%                                      | 37%                                     | 37%   |
| 76%                                     | 78%                                     | 75%                                     | (3%)  |

| 1990<br>RESPONSE<br>WITHIN<br>6 MINUTES | 1992<br>RESPONSE<br>WITHIN<br>6 MINUTES | 1993<br>RESPONSE<br>WITHIN<br>6 MINUTES | 1992 TO 1993<br>IMPROVEMENT<br>OR (DECLINE) |
|---|---|---|---|
| 95%                                     | 96%                                     | 96%                                     | 0%  |
| 92%                                     | 91%                                     | 90%                                     | (1%)  |
| 93%                                     | 95%                                     | 90%                                     | (5%)  |
| 92%                                     | 80%                                     | 92%                                     | 12%   |
| 73%                                     | 92%                                     | 75%                                     | (17%)                                       |
| 88%                                     | 63%                                     | 83%                                     | 20%   |
| 89%                                     | 100%                                    | 87%                                     | (13%)                                       |
| 91%                                     | 94%                                     | 88%                                     | (6%)  |
| 96%                                     | 89%                                     | 83%                                     | 14%   |
| 83%                                     | 75%                                     | 88%                                     | 13%   |
| 75%                                     | 100%                                    | 80%                                     | (20%)                                       |
| 88%                                     | 60%                                     | 74%                                     | 14%   |
| 57%                                     | 89%                                     | 82%                                     | (7%)  |
| 79%                                     | 86%                                     | 88%                                     | 2%  |
| 100%                                    | 100%                                    | 80%                                     | (20%)                                       |
| 95%                                     | 94%                                     | 90%                                     | (4%)  |
| 86%                                     | 100%                                    | 89%                                     | (11%)                                       |
| 72%                                     | 100%                                    | 80%                                     | (20%)                                       |
| 79%                                     | 67%                                     | 82%                                     | 15%   |
| 50%                                     | 50%                                     | 86%                                     | 36%   |
| 85%                                     | 100%                                    | 75%                                     | (25%)                                       |
| 79%                                     | 100%                                    | 75%                                     | (25%)                                       |
| 89%                                     | 50%                                     | 59%                                     | 9%  |
| 71%                                     | 71%                                     | 77%                                     | 6%  |
| 50%                                     | 0%                                      | 84%                                     | 84%   |
| 73%                                     | 83%                                     | 81%                                     | (2%)  |
| 67%                                     | 80%                                     | 52%                                     | (28%)                                       |
| 100%                                    | 33%                                     | 41%                                     | 8%  |
| N/A                                     | 0%                                      | 45%                                     | 45%   |
| 84%                                     | 86%                                     | 83%                                     | (3%)  |



**Only Three City Council Districts (Districts 3, 5, And 6)  
Met The SJFD's Travel Time Objective  
Of 4 Minutes Or Less For 80 Percent Of Responses**

In 1992, the SJFD met its travel time objective of 4 minutes or less for 80 percent of responses in only three of the ten City Council districts. For 1993, as shown in Table IV on page 13, the SJFD still met the travel time performance objective in only three City Council districts (Districts 3, 5, and 6). From 1992 to 1993, the SJFD's travel time performance declined in six of the City Council districts (Districts 2, 3, 4, 5, 8, and 9).

**City Council District 4 Had The Lowest Percentage Of Responses  
That Were 2 Minutes Or Less For Turnout Time (82 Percent)  
And 4 Minutes Or Less For Travel Time (56 Percent)**

The SJFD achieved its best travel time performance for 1993 in City Council District 3 with 90 percent of its responses within 4 minutes, as shown in Table VI. The best SJFD performance for combined turnout and travel time was also in City Council District 3 where 93 percent of the responses were in 6 minutes or less. The SJFD's performance in City Council District 4 was the poorest in the City in all three categories: turnout time (82 percent within 2 minutes), travel time (56 percent within 4 minutes), and combined turnout and travel time (65 percent within 6 minutes). Table VII on page 17 categorizes the same 1993 EMS performance data by fire station response area.

TABLE VI

# SUMMARY OF TURNOUT AND TRAVEL TIME PERFORMANCE BY CITY COUNCIL DISTRICT

FROM JULY 1, 1993, THROUGH SEPTEMBER 30, 1993

*SJFD RESPONSE  
PERFORMANCE  
OBJECTIVES*

*TURNOUT TIME:  
90% NOT TO EXCEED  
2 MINUTES*

*TRAVEL TIME :  
80% NOT TO EXCEED  
4 MINUTES*

*TURNOUT +  
TRAVEL COMBINED:  
NO OBJECTIVE*

## TURNOUT TIME

| CITY<br>COUNCIL<br>DISTRICT | RESPONSE<br>WITHIN<br>2 MINUTES | AVERAGE<br>TURNOUT<br>TIME |
|-----------------------------|---------------------------------|----------------------------|
| 4                           | 82%                             | 1:31                       |
| 2                           | 87%                             | 1:29                       |
| 10                          | 84%                             | 1:28                       |
| 8                           | 87%                             | 1:26                       |
| 7                           | 89%                             | 1:20                       |
| 9                           | 83%                             | 1:33                       |
| 1                           | 92%                             | 1:22                       |
| 5                           | 87%                             | 1:26                       |
| 6                           | 88%                             | 1:25                       |
| 3                           | 89%                             | 1:24                       |
| <b>CITYWIDE</b>             | <b>87%</b>                      | <b>1:26</b>                |

## TRAVEL TIME

| RESPONSE<br>WITHIN<br>4 MINUTES | AVERAGE<br>TRAVEL<br>TIME |
|---------------------------------|---------------------------|
| 56%                             | 3:58                      |
| 57%                             | 3:59                      |
| 68%                             | 3:33                      |
| 68%                             | 3:26                      |
| 68%                             | 3:29                      |
| 78%                             | 3:11                      |
| 75%                             | 3:15                      |
| 81%                             | 3:11                      |
| 81%                             | 3:09                      |
| 90%                             | 2:29                      |
| <b>75%</b>                      | <b>3:14</b>               |

## TURNOUT + TRAVEL TIME

| RESPONSE<br>WITHIN<br>6 MINUTES | AVERAGE<br>TURNOUT +<br>TRAVEL TIME |
|---------------------------------|-------------------------------------|
| 65%                             | <b>5:28</b>                         |
| 68%                             | <b>5:28</b>                         |
| 78%                             | <b>5:01</b>                         |
| 79%                             | <b>4:53</b>                         |
| 82%                             | <b>4:49</b>                         |
| 85%                             | <b>4:43</b>                         |
| 86%                             | <b>4:37</b>                         |
| 87%                             | <b>4:37</b>                         |
| 88%                             | <b>4:34</b>                         |
| 93%                             | <b>3:53</b>                         |
| <b>83%</b>                      | <b>4:39</b>                         |

# TABLE VII

## SUMMARY OF TURNOUT AND TRAVEL TIME PERFORMANCE BY FIRE STATION RESPONSE AREA FROM JULY 1, 1993, THROUGH SEPTEMBER 30, 1993

|   |  |  |  |
|---|--|--|--|
| <i>SJFD RESPONSE<br/>PERFORMANCE<br/>OBJECTIVES</i> | <i>TURNOUT TIME:<br/>90% NOT TO EXCEED<br/>2 MINUTES</i> | <i>TRAVEL TIME :<br/>80% NOT TO EXCEED<br/>4 MINUTES</i> | <i>TURNOUT +<br/>TRAVEL COMBINED:<br/>NO OBJECTIVE</i> |
|---|--|--|--|

| TURNOUT TIME            |                                 |                            | TRAVEL TIME                     |                           | TURNOUT + TRAVEL                |                                     |
|-------------------------|---------------------------------|----------------------------|---------------------------------|---------------------------|---------------------------------|-------------------------------------|
| FIRE<br>STATION<br>AREA | RESPONSE<br>WITHIN<br>2 MINUTES | AVERAGE<br>TURNOUT<br>TIME | RESPONSE<br>WITHIN<br>4 MINUTES | AVERAGE<br>TRAVEL<br>TIME | RESPONSE<br>WITHIN<br>6 MINUTES | AVERAGE<br>TURNOUT +<br>TRAVEL TIME |
| 28                      | 67%                             | 1:47                       | 35%                             | 4:50                      | 41%                             | 6:39                                |
| 29                      | 75%                             | 1:41                       | 37%                             | 4:42                      | 45%                             | 6:23                                |
| 27                      | 91%                             | 1:29                       | 40%                             | 4:52                      | 52%                             | 6:21                                |
| 23                      | 77%                             | 1:37                       | 50%                             | 4:12                      | 59%                             | 5:49                                |
| 5                       | 81%                             | 1:34                       | 66%                             | 3:39                      | 75%                             | 5:09                                |
| 11                      | 78%                             | 1:38                       | 73%                             | 3:30                      | 80%                             | 5:08                                |
| 12                      | 82%                             | 1:30                       | 66%                             | 3:35                      | 74%                             | 5:06                                |
| 22                      | 87%                             | 1:25                       | 64%                             | 3:41                      | 75%                             | 5:05                                |
| 21                      | 86%                             | 1:30                       | 65%                             | 3:36                      | 75%                             | 5:05                                |
| 13                      | 85%                             | 1:27                       | 72%                             | 3:35                      | 82%                             | 5:04                                |
| 24                      | 90%                             | 1:23                       | 62%                             | 3:37                      | 77%                             | 5:00                                |
| 18                      | 90%                             | 1:26                       | 68%                             | 3:34                      | 80%                             | 5:00                                |
| 26                      | 90%                             | 1:14                       | 64%                             | 3:36                      | 81%                             | 4:49                                |
| 6                       | 89%                             | 1:24                       | 73%                             | 3:25                      | 83%                             | 4:48                                |
| 9                       | 80%                             | 1:36                       | 74%                             | 3:09                      | 83%                             | 4:45                                |
| 10                      | 88%                             | 1:22                       | 76%                             | 3:22                      | 88%                             | 4:45                                |
| 20                      | 91%                             | 1:48                       | 88%                             | 2:54                      | 86%                             | 4:42                                |
| 25                      | 77%                             | 1:42                       | 82%                             | 2:56                      | 84%                             | 4:41                                |
| 19                      | 97%                             | 1:10                       | 72%                             | 3:29                      | 82%                             | 4:39                                |
| 15                      | 97%                             | 1:16                       | 76%                             | 3:22                      | 80%                             | 4:38                                |
| 7                       | 86%                             | 1:29                       | 82%                             | 3:05                      | 87%                             | 4:35                                |
| 17                      | 86%                             | 1:29                       | 83%                             | 3:04                      | 89%                             | 4:32                                |
| 14                      | 90%                             | 1:25                       | 80%                             | 3:05                      | 88%                             | 4:29                                |
| 16                      | 86%                             | 1:25                       | 84%                             | 3:01                      | 90%                             | 4:27                                |
| 2                       | 87%                             | 1:25                       | 83%                             | 3:01                      | 90%                             | 4:26                                |
| 4                       | 91%                             | 1:24                       | 88%                             | 2:55                      | 92%                             | 4:19                                |
| 8                       | 94%                             | 1:19                       | 82%                             | 2:54                      | 88%                             | 4:14                                |
| 3                       | 86%                             | 1:26                       | 85%                             | 2:42                      | 90%                             | 4:08                                |
| 1                       | 88%                             | 1:23                       | 95%                             | 2:05                      | 96%                             | 3:27                                |
| CITYWIDE                | 87%                             | 1:26                       | 75%                             | 3:14                      | 83%                             | 4:39                                |

**When Compared To Our 1992 Study Results,  
Neither The SJFD's 1993 Travel Time Nor Combined  
Turnout Time Plus Travel Time Performance  
In City Council District 4 Improved**

To further analyze which fire stations in City Council District 4 are responsible for the relatively poor EMS response performance in that district as compared to other areas of the City, we prepared Table VIII for the fire stations that serve City Council District 4. Table VIII summarizes 1992 and 1993 SJFD turnout and travel time performance for all EMS event activity in the response areas for stations serving the district. As Table VIII indicates, Fire Stations 23 and 29 had the poorest combined turnout and travel time performance in the district with only 59 percent and 45 percent, respectively, for responses in 6 minutes or less.

Table IX on page 20 then looks exclusively at the 1993 EMS response performance in City Council District 4 for all 757 of the events dispatched from July 1, 1993, through September 30, 1993.<sup>9</sup> Turnout and travel time performance is shown incrementally by minutes as to both the number and percentage of EMS events achieving that time. The average and longest times for each segment are also shown in Table IX.

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<sup>9</sup> Note that the number of events on Table IX for travel time (729) is less than the number for turnout time (757) because the dispatch for 28 events was canceled after the fire unit had already gone en route from the fire station. Also, the number of events with combined turnout and travel time (718) is less still because for 11 events the first responding unit did not have a turnout time (i.e., it was not in the station at the time of dispatch).

TABLE VII

**1992 TO 1993**  
**SUMMARY OF TURNOUT AND TRAVEL TIME PERFORMANCE**  
 ALL ACTIVITY FOR STATIONS THAT SERVE CITY COUNCIL DISTRICT 4

*SJFD RESPONSE  
PERFORMANCE  
OBJECTIVES*

*TURNOUT TIME:  
90% NOT TO EXCEED  
2 MINUTES*

*TRAVEL TIME:  
80% NOT TO EXCEED  
4 MINUTES*

*TURNOUT +  
TRAVEL COMBINED:  
NO OBJECTIVE*

## TURNOUT TIME PERFORMANCE

|                   | 1992                      | 1993                      |                                       |
|-------------------|---------------------------|---------------------------|---------------------------------------|
| FIRE STATION AREA | RESPONSE WITHIN 2 MINUTES | RESPONSE WITHIN 2 MINUTES | 1992 TO 1993 IMPROVEMENT OR (DECLINE) |
| 2                 | 100%                      | 87%                       | (13%)                                 |
| 5                 | 82%                       | 81%                       | (1%)                                  |
| 19                | 67%                       | 97%                       | 30%                                   |
| 23                | 50%                       | 77%                       | 27%                                   |
| 25                | 0%                        | 77%                       | 77%                                   |
| 29                | 100%                      | 75%                       | (25%)                                 |
| DISTRICT          | 73%                       | 82%                       | 9%                                    |
| CITYWIDE          | 92%                       | 87%                       | (5%)                                  |

## TRAVEL TIME PERFORMANCE

|  | 1992                      | 1993                      |                                       |
|--|---------------------------|---------------------------|---------------------------------------|
|  | RESPONSE WITHIN 4 MINUTES | RESPONSE WITHIN 4 MINUTES | 1992 TO 1993 IMPROVEMENT OR (DECLINE) |
|  | 83%                       | 83%                       | 0%                                    |
|  | 100%                      | 98%                       | (2%)                                  |
|  | 83%                       | 72%                       | (11%)                                 |
|  | 67%                       | 50%                       | (17%)                                 |
|  | 0%                        | 82%                       | 82%                                   |
|  | 0%                        | 37%                       | 37%                                   |
|  | 73%                       | 56%                       | (17%)                                 |
|  | 78%                       | 75%                       | (3%)                                  |

## TURNOUT + TRAVEL TIME

|  | 1992                      | 1993                      |                                       |
|--|---------------------------|---------------------------|---------------------------------------|
|  | RESPONSE WITHIN 8 MINUTES | RESPONSE WITHIN 8 MINUTES | 1992 TO 1993 IMPROVEMENT OR (DECLINE) |
|  | 91%                       | 90%                       | (1%)                                  |
|  | 92%                       | 75%                       | (17%)                                 |
|  | 67%                       | 82%                       | 15%                                   |
|  | 50%                       | 69%                       | 9%                                    |
|  | 0%                        | 84%                       | 84%                                   |
|  | 0%                        | 45%                       | 45%                                   |
|  | 68%                       | 65%                       | (3%)                                  |
|  | 86%                       | 83%                       | (3%)                                  |

TABLE IX

**CITY COUNCIL DISTRICT 4**  
**EMS TURNOUT, TRAVEL, AND COMBINED RESPONSE TIMES**  
 FROM JULY 1, 1993, THROUGH SEPTEMBER 30, 1993

| TURNOUT TIME           |                      |                          | TRAVEL TIME           |                      |                          | TURNOUT + TRAVEL TIME      |                      |                          |
|------------------------|----------------------|--------------------------|-----------------------|----------------------|--------------------------|----------------------------|----------------------|--------------------------|
| Length of Turnout Time | Number of EMS Events | Percentage of EMS Events | Length of Travel Time | Number of EMS Events | Percentage of EMS Events | Length of Turnout + Travel | Number of EMS Events | Percentage of EMS Events |
| <= 1 Minute            | 163                  | 21%                      | <= 1 Minute           | 10                   | 1%                       | <= 3 Minutes               | 47                   | 6%                       |
| > 1 Minute             | 460                  | 61%                      | > 1 Minute            | 60                   | 8%                       | > 3 Minutes                | 113                  | 16%                      |
| <= 2 Minutes           |                      |                          | <= 2 Minutes          |                      |                          | <= 4 Minutes               |                      |                          |
| > 2 Minutes            | 119                  | 16%                      | > 2 Minutes           | 174                  | 24%                      | > 4 Minutes                | 165                  | 23%                      |
| <= 3 Minutes           |                      |                          | <= 3 Minutes          |                      |                          | <= 5 Minutes               |                      |                          |
| > 3 Minutes            | 15                   | 2%                       | > 3 Minutes           | 161                  | 22%                      | > 5 Minutes                | 141                  | 20%                      |
| <b>TOTALS</b>          | <b>757</b>           | <b>100%</b>              | <= 4 Minutes          |                      |                          | <= 6 Minutes               |                      |                          |
| Average Time 1:31      |                      |                          | > 4 Minutes           | 152                  | 21%                      | > 6 Minutes                | 118                  | 16%                      |
| Longest Time 9:45      |                      |                          | <= 5 Minutes          |                      |                          | <= 7 Minutes               |                      |                          |
|                        |                      |                          | > 5 Minutes           | 87                   | 12%                      | > 7 Minutes                | 70                   | 10%                      |
|                        |                      |                          | <= 6 Minutes          |                      |                          | <= 8 Minutes               |                      |                          |
|                        |                      |                          | > 6 Minutes           | 49                   | 7%                       | > 8 Minutes                | 30                   | 4%                       |
|                        |                      |                          | <= 7 Minutes          |                      |                          | <= 9 Minutes               |                      |                          |
|                        |                      |                          | > 7 Minutes           | 16                   | 2%                       | > 9 Minutes                | 14                   | 2%                       |
|                        |                      |                          | <= 8 Minutes          |                      |                          | <= 10 Minutes              |                      |                          |
|                        |                      |                          | > 8 Minutes           | 20                   | 3%                       | > 10 Minutes               | 20                   | 3%                       |
|                        |                      |                          | <b>TOTALS</b>         | <b>729</b>           | <b>100%</b>              | <b>TOTALS</b>              | <b>718</b>           | <b>99%</b>               |
|                        |                      |                          |                       |                      |                          | Average Time 5:28          |                      |                          |